**Illya’s Project Abstract**

Summarized in 250-300 words:

1. Problem:
   * University curriculum emphasizes the theoretical aspects of a subject with homework drills to reinforce the lessons. The theory must be learned to earn the degree but often graduates are lacking practical experience needed to compete for jobs. This project strives to close the gap between theory and practice with a laboratory-driven approach.
2. Objectives:
   * This project is intended as the basis for a Data Acquisition class which could be taught at UNH. This is a cross-disciplinary subject between IT and EE which will blend theory with practical projects and challenge students to face and resolve real world engineering situations.
3. Approach:
   * From the IT side: The course will cover how Python Jupyter Notebook can be used to control instruments and collect real-world data. Numpy and Pandas libraries are used to process the data and visualizations are created using Matplotlib or other libraries. Using the Notebook with neat use of Markup language, the test protocol description also becomes the executable test itself and also the final report, all integrated into one.
   * From the EE side: An introduction to common laboratory instruments and their use. Useful experiments will be studied from the world of semiconductors since measureable events are easily and safely controlled, readily available and inexpensive.
4. Expected results:
   * Results will include all materials needed to teach the class including tested labs and solution guides in the form of prepared Notebooks. The intent is that the materials can also be used to teach a training class in a work environment to those who are unfamiliar with the Jupyter Notebook.